DOCUMENT RESUME

ED 114 968 EA 007 709

AUTHOR Guerriero, Carl A.
TITLE Interest in School and Learning. A Guide to the Analysis and Interpretation of EQA Scores and Related Intervention Techniques. Guide to Strategies for Improvement, Goal 4. First Edition.
INSTITUTION Pennsylvania State Dept. of Education, Harrisburg. Bureau of Planning and Evaluation.
PUB DATE 74
NOTE 65p.; Related document is EA 007 710

EDRS PRICE MF-$0.76 HC-$3.32 Plus Postage
DESCRIPTORS Curriculum Development; *Educational Assessment; Educational Diagnosis; Elementary Secondary Education; Evaluation Methods; Individualized Instruction; Open Education; Participant Satisfaction; Programed Instruction; Simulation; *State Programs; *Statistical Analysis; *Student Attitudes; *Student Interests; Student Motivation; Student Participation; Teaching Methods; Teaching Techniques; Team Teaching
IDENTIFIERS *Pennsylvania

ABSTRACT

This document is designed to assist school district personnel in the identification of intervention strategies that have a good probability of increasing the district's mean score on the Goal IV Educational Quality Assessment (EQA) instrument. Appropriate educational research has been reviewed and distilled into seven propositions that are applicable to the real world of basic education. In addition to these propositions, intervention techniques that may affect Goal IV (student interest in school and learning) are described. The interventions, in most cases, are widely discussed in the literature and are being used in school districts throughout the nation. An appendix contains bibliographies related to these strategies, which include continuous progress plans, team teaching, open education, learning stations, student contracting, individualized instruction, simulation and gaming, programmed instruction, and peer tutoring. The final section considers related innovative programs resulting from Elementary and Secondary Education Act Title III and describes a publication that can help identify school districts using these programs. Deciding which of the propositions and which of the intervention techniques are appropriate is left to the school district staff. (Author/IRT)

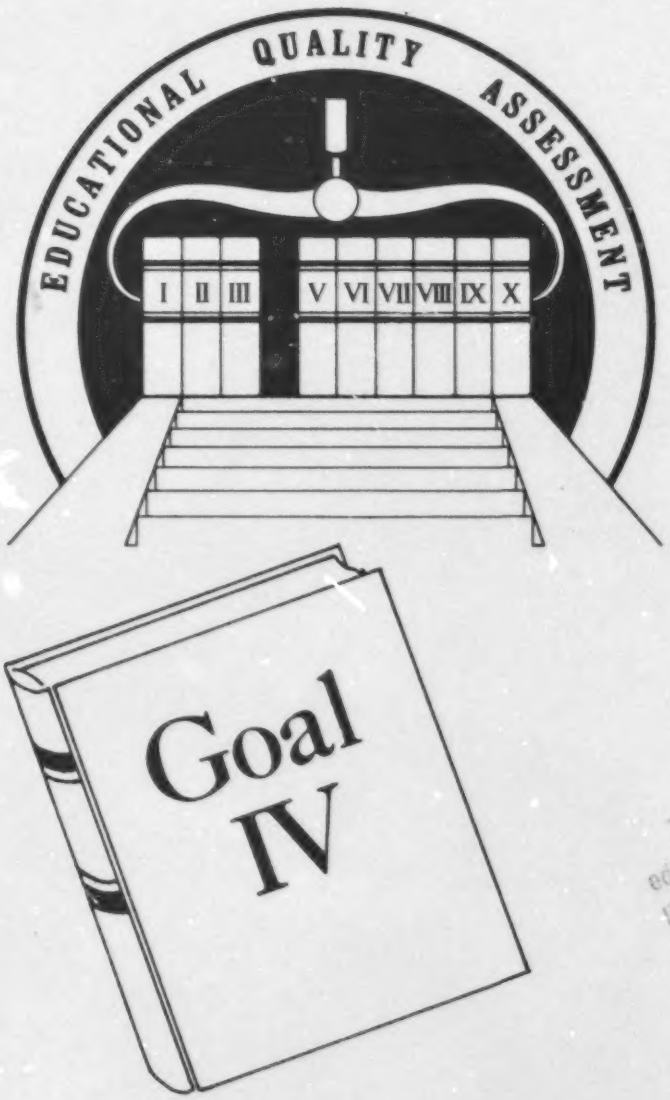
****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

Guide to Strategies for Improvement

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED114968

EA 007 709



This publication is a preliminary edition. [illegible] and printing deadlines necessitated that [illegible] final editing was accomplished. Errors will be corrected in a contemplated later edition.

Interest in School and Learning

First Edition
Pennsylvania Department of Education 1974

First Edition

A Guide to the Analysis and Interpretation of EQA Scores and Related Intervention Techniques

GOAL IV Interest in School and Learning

by Carl A. Guerriero
Division of Educational Quality Assessment
Bureau of Planning and Evaluation
Pennsylvania Department of Education
1974

Commonwealth of Pennsylvania
Milton J. Shapp, Governor

Department of Education
John C. Pittenger, Secretary

Office of Basic Education
Donald M. Carroll Jr., Commissioner
Harry K. Gerlach, Deputy Commissioner

Bureau of Planning and Evaluation
John L. Kennedy, Director

Division of Educational Quality Assessment
Thomas E. Kendig, Chief

Pennsylvania Department of Education
Box 911
Harrisburg, Pa. 17126

TABLE OF CONTENTS

Page

PREFACE i

GOAL STATEMENT 1

RATIONALE 1

TRENDS 3

RELATED GOALS 5

IMPLICATIONS FROM RESEARCH 6

STRATEGIES AND INTERVENTION TECHNIQUES 10

Proposition One - Understanding Task 10

Proposition Two - Success of Task 10

Proposition Three - Relevant 12

Proposition Four - Variety 15

Proposition Five - Parental Interest 25

Proposition Six - Teacher Interest 27

Proposition Seven - Involvement 28

VARIABLES THAT RELATE TO GOAL IV 31

ITEM DATA 36

OPERATING PROGRAMS (ESEA TITLE III) 38

APPENDIX 42

Teacher - Student Interaction 44

How to Increase a Teacher's Interest and Compassion Towards the Students 45

Student Involvement 46

Continuous Progress Plan 47

Team Teaching 48

Page

Open Education. 49

Learning Stations 50

Student Contracting 51

Individualized Instruction. 52

Simulations and Games 53

Programmed Instruction. 54

Peer Tutoring 55

Relevant Education. 56

PREFACE

This document is designed to assist school district personnel in the identification of intervention strategies that have a good probability of increasing the district's mean score on the Goal IV Educational Quality Assessment instrument. It is suggested that prior to using this document, the district provide the faculty with a complete description of the EQA School Profile including all of the district's scores as well as the statewide data. EQA Manual One - "Teacher In-Service on the EQA Status Report" describes a series of workshops specifically designed for this purpose.

The next step should be an analysis of the report relative to the district's philosophy and Pennsylvania's Ten Goals of Quality Education, to determine the critical needs or goal areas in the district. EQA Manual Two - "Identification of Critical Goals" describes a strategy for this step.

Finally, after the critical goals have been identified, a plan of action should be developed. EQA Manual Three - "Construction of a Plan of Action" describes a model for such a plan. One of the steps in the plan of action involves the use of this document.

Included in this document are the rationale for Goal IV and the specific areas measured by the Goal IV instrument, followed by the past history of EQA statewide mean scores on this goal. The latter is included to provide information relative to the trend of Goal IV mean scores, since if scores are declining year after year then the task is not necessarily to increase scores but rather to halt any further decline of the scores.

Appropriate educational research has been reviewed. Rather than quote from the great bulk of relevant research, the writer has distilled the studies into seven propositions, supported by the literature and applicable to the real world of basic education. In addition to these propositions, intervention techniques which may affect Goal IV are described. The interventions, in most cases, are widely discussed in the literature and are being used in school districts throughout the nation. Also included is an Appendix which contains bibliographies related to the suggested strategies. The bibliography listings contain "how to do" types of materials along with some research studies. This material has been collected by RISE[1] and is available upon request.

The Pennsylvania assessment program involves some very sophisticated and comprehensive statistical analyses resulting in far too much information to include each analysis and statistic in the School Report. Some of it, such as correlation coefficients based upon the condition variables, are printed in the EQA Interpretation Manual, while other information is on file in the division offices in Harrisburg. An example of the latter would be item data which indicates the proportion of a given district's students that responded in a positive or negative fashion for each individual item.

This document describes how to utilize both correlation data and item data. Supplementary information relating to correlation coefficients and how they may be interpreted, is included in Appendix A of Manual Two - "Identification of Critical Goals".

---

[1]Research and Information Services for Education, 198 Allendale Road, King of Prussia, Pennsylvania 19406.

The final section of this document considers related innovative programs resulting from ESEA Title III and describes a publication that can help identify school districts using these programs.

The decision as to which of the propositions and which of the intervention techniques are appropriate is left to the school district staff. There are no guarantees. A technique that succeeds in one district may or may not succeed in another. These are professional decisions to be made by professionals. This document should help in the decision-making process.

INTEREST IN SCHOOL AND LEARNING

GOAL STATEMENT

> "Quality education should help every child acquire a positive attitude toward the learning process."

RATIONALE

The school represents perhaps the most powerful single force in determining a person's overall attitude toward learning. In this regard, the climate and learning atmosphere present in the school, the nature of the educational experiences the school provides and the quality of the personal interactions it fosters between student and educator, all significantly shape the students' life-long attitudes toward learning.

The school experience should be such that students find the learning activities associated with it enjoyable and rewarding to the point that they are motivated to do well and to continue learning on their own initiative beyond the requirements of formal education. Everything possible should be done to ensure that the attitude of the teacher, the atmosphere of the school, and the school's physical condition contribute toward this end so that the individual, both as a child and later as an adult, will hold education high among his or her values[1].

This goal involves two distinct but related affective concepts. One is interest in school and the other is interest in learning. For certain grade levels the EQA Goal IV instrument is divided into two subscales to measure these concepts, while for other grade levels there

---

[1]EQA Technical Manual, The Pennsylvania Department of Education.

are three subscales, one for interest in learning and the other two for interest in school and interest in teachers. The correlation between interest in school and interest in learning is about .66.

The interest in learning subscale contains items designed to measure the student's present attitude toward learning. Students can respond with "Strongly Agree," "Agree," "Uncertain," "Disagree," or "Strongly Disagree" on items such as, "I like to learn new things." Mean school scores on this subscale provide districts with a partial evaluation of their past and present curricula and, in addition, establish a benchmark for future curricula. It should be remembered, however, that only a portion of the variation in scores is due to school effects and another portion is due to home environment and heredity. The goal score is a function of many factors and not simply the school factor.

The second and third subscales relate to the student's interest in the present total school curriculum. An underlying assumption for these scales is that if a student has an interest in school he or she will achieve at a higher level and have a more positive attitude toward life-long mental growth. In addition, students should enjoy school and learning! It is entirely possible, however, for a student to score high on the interest in learning scale and low on the interest in school scale or vice versa. These latter subscales focus upon current experiences in the school system such as teacher strategies, homework, school regulations, course offerings, teacher rapport, grading systems and extracurricular activities.

Learning is a life-long process. Physical growth terminates after about the first quarter of a normal life span but mental growth can and

should continue long after physical growth has ceased. For better or for worse, the formal educational experience provided by the school will affect the student's life-long attitude toward mental growth.

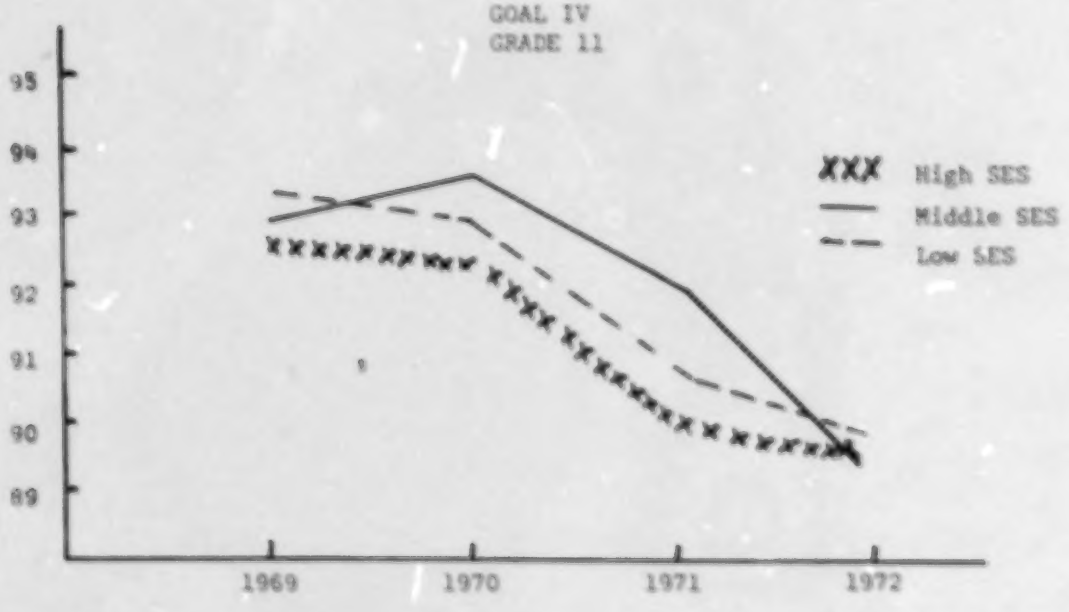
TRENDS

The present Goal IV instrument is very similar to the one used from the year 1969 thru 1972. Several trends can be noted from data obtained from the tests administered during this period of time.

In grade 11, with the exception of 1969-1970 middle socioeconomic status (SES) schools, Goal IV scores have declined each of the four successive years for high, middle and low SES schools. Furthermore, the high SES schools scored consistently below the low SES schools. (NOTE: EQA delineates schools into SES classifications for the purpose of improving the prediction of school scores. A number of condition variables including father's occupation, mother's education and residence are used for the purpose.)

FIGURE I

GOAL IV
GRADE 11



In addition, a longitudinal study[1] which followed a group of students from grade 5 to grade 7 shows a significant decrease in Goal IV mean scores over the two-year period, i.e., as a group, students scored lower on the interest in school and learning scale when tested in 7th grade than those same students had scored when tested in 5th grade. It is not clear whether this decrease is due to student maturation, transition from the elementary school to secondary school or simply the manifestation of the phenomenon noted for grade 11 Goal IV scores from 1969 to 1972. Perhaps the across-time correlation coefficient calculated from the individual student scores in 1969 and in 1971 provides a clue. Of the 11 goal scores obtained from the longitudinal study (Goal III has both a verbal score and a mathematics score), seven had greater across-time correlation coefficients than the .35 obtained for Goal IV. In other words, the relationship between a student's attitude toward school and learning in the 5th grade, and his/her attitude toward school and learning two years later when in 7th grade, is not as great as the relationship between his/her attitude from 5th to 7th grade on these other seven instruments. Students with high mathematics scores in grade 5 can be successfully predicted to have high mathematics scores in grade 7 ($r=.67$). This cannot be said with as much certainty for their interest in school and learning.

---

[1]Kohr, Richard. A Longitudinal Study of the Pennsylvania Grade 5 Educational Quality Assessment Package. The Pennsylvania Department of Education, 1972.

Two observations are clear from the Goal IV longitudinal data. One is that as students progress from grade 5 to grade 7 their Goal IV mean scores decrease. The other is the instability of this affective area at that age level as measured by an "across-time" correlation coefficient. Students with high interest in school and learning in grade 5 may or may not have a high interest in school and learning in grade 7. This second observation indicates how malleable a child's interest in school and learning is at that age level and perhaps suggests a need for a concentrated middle school effort related to Goal IV.

The initial task, then, is not so much to increase Goal IV scores as it is to stop the rather steady decrease in mean school scores on this goal. Based upon Figure I, if the present trend continues, a school may expect to obtain lower scores on interest in school and learning each time it is tested.

RELATED GOALS

Appendix A of Manual Two describes how certain scores or groups of scores on the Ten Goals of Quality Education relate to one another. Hypothesis II, based upon the 9th grade correlation matrix, considers Goals I, II, IV, V, VI, IX and X as a cluster of goals whose scores exhibit a rather significant correlation with one another. The correlation coefficients between Goal IV and the remaining goals in this cluster range from .39 to .73. These coefficients were calculated from mean school data and indicate that a school scoring high on Goal IV will tend to score well on the other goals within the cluster. A similar

pattern may be seen when looking at student data. However, the magnitude of the correlation coefficients is not as great for individuals as it is for schools.

TABLE I
Goal IV Interest in School and Learning
Correlation Coefficients
Grade 9

Students (n=3018)	Schools (n=114)		
.54	.73	IX	Human Accomplishments
.46	.72	X	Changing World
.48	.56	VI	Health Habits
.49	.52	V	Citizenship
.33	.42	II	Understanding Others
.40	.39	I	Self-Understanding
.33	.15	VIII	Vocational Attitude
.10	.08	VII	Creativity
.23	-.11	VIII	Vocational Knowledge
.26	-.15	III	Basic Skills - Verbal
.19	-.17	III	Basic Skills - Math

It is entirely possible that intervention techniques designed to increase scores on Goal IV may also increase scores on other goals within the cluster. Schools should determine if other goals within the cluster need attention and if so combine committee efforts and utilize the other appropriate EQA goal documents when searching for alternate strategies.

IMPLICATIONS FROM RESEARCH

Educational outcomes are a function of heredity and the total experiences, both in and out of school, of each individual. The number of unique combinations of these parameters boggle the mind. Educational

research studies generally involve the selection of several parameters such as age, IQ. Then, after matching a small number of students on these variables, one subgroup of the matched students is exposed to a specific intervention technique, say computer assisted instruction, and the other subgroup to an alternative intervention technique, say team teaching. A brief exposure to these strategies is followed by some type of student evaluation to measure a small bit of cognitive behavior.

Random selection is sometimes used in place of matching on certain parameters. For example, rather than matching age and IQ, the researcher may simply obtain a random sample of 7th grade students in two school buildings for the experiment. If, when the study is complete, the experimental teaching strategy or materials appear to produce greater cognitive gains, then one might conclude that for 7th grade students, in this part of the state, during this part of this year, the experimental strategy is best.

Other research studies "match" students on a greater number of variables, are conducted over a longer period of time and measure both affective and cognitive behaviors. In any case, findings may imply that one intervention technique seems to produce higher student "scores" than another intervention technique <u>if</u> the "conditions" are as described in the study.

Another type of study called aptitude-treatment interaction (ATI) attempts to identify strategies or intervention techniques that work best for students with particular personalogical traits (e.g., a compulsive or reflexive trait). Significant findings from this type of study <u>might</u> imply that compulsive students will achieve at a higher

level if exposed to the "experimental treatment" while reflexive students will achieve at a higher level if exposed to "traditional methods." Translated into practice, students would be delineated into a compulsive group and reflexive group with the former receiving the "experimental" strategy (now an accepted strategy) while the latter group receives the "traditional" teaching strategy. The state of the art, however, leaves a lot to be desired. Generalizations and conclusions relevant to educational pedagogy must necessarily be based upon the accumulation and synthesis of a wide variety of studies. In addition to student variables, other parameters such as school variables, teacher variables and home environment should be considered. There are no two school districts in the country exactly alike on all of these factors just as there are no two individuals exactly alike with respect to their total past experiences. It is obvious, then, that intervention techniques that are successful in one situation may or may not be successful in another. Furthermore, hypotheses related to personalogical variables and teaching strategies will not be universally true since only a small number of these variables may be accounted for. Finally, the definition and method of measurement of a given construct are not universal constants and will vary from study to study.

This document will take the broadest view of achievement and include both cognitive and affective behaviors with an emphasis on long-term learning and transfer of learning. This is in contrast with much educational research which is concerned with short term cognitive behaviors.

The following propositions are based upon a subjective evaluation of relevant educational research. The discussion of each proposition in

the next section is designed to give the reader an insight into the construct relating to motivation, interest in school and interest in learning. Variables that may affect this construct will be noted. In addition, promising teaching strategies and intervention techniques based upon the literature and applicable to a wide variety of students will be presented.

Proposition One

> The more the student understands what is expected for the successful completion of a given task or course, the greater the probability of the student successfully completing the task.

Proposition Two

> The gratification the student receives from the execution and completion of a given task is directly related to the success the student has during the process of completing the task.

Proposition Three

> The more the student perceives learning as being relevant, the greater will be the student's achievement and gratification.

Proposition Four

> The more the student is exposed to a variety of teaching strategies and learning experiences, the greater will be the student's achievement and gratification.

Proposition Five

> The more the student's parents and relatives display an overt interest in the student's accomplishments, the greater will be the resulting achievement and gratification.

Proposition Six

> The student's achievement and gratification is directly related to the sincere interest and compassion exhibited by the teacher.

Proposition Seven

> The greater the student's involvement in the learning process, the greater will be the student's achievement and gratification.

STRATEGIES AND INTERVENTION TECHNIQUES

Proposition One: The more the student understands what is expected for the successful completion of a given task or course, the greater the probability of the student successfully completing the task.

Proposition Two: The gratification the student receives from the execution and completion of a given task is directly related to the success the student has during the process of completing the task.

Note: (Proposition One is prerequisite for Proposition Two; therefore, both will be discussed simultaneously.)

Research seems to indicate that if a student has a clear and concise understanding of the objectives upon which a given task or course is based, then the student will be more comfortable about the task. Succinct statements of learning objectives are not common in schools today. In fact, it frequently becomes a guessing game for the student as to what will be tested at the conclusion of a course.

Much has been said and written in the past decade about performance or behavioral objectives. Certain terms such as "understand" and "appreciate" went out of vogue and were replaced with action verbs such as "list," "describe" and "identify." The concern of proponents was measurement and accountability. They maintained that a good educational objective should not only be measurable but should contain levels of acceptable performance. However, as with many educational innovations,

the path from the researcher to the practitioner is lined with special interests and prejudices; behavioral objectives are no exception. Entire courses have been rewritten by teachers in behavioral terms. In extreme cases specific behavioral objectives were written for each class period for each day of the school term, resulting in hundreds of objectives for a given course.

A number of serious defects and inefficiencies have resulted from this approach. The most obvious is the extensive amount of teacher time and effort involved in writing such a myriad of objectives. Not as obvious, but perhaps more serious, is the degree of specificity frequently required for each objective. Considerable specificity can result in great lists of trivial low level skills and concepts. In many subject areas, only the very lowest levels of behavior are represented. The "big picture" never emerges. Application of learned concepts to new situations and generalizations based upon relevant experiences are difficult to express in behavioral terms and are often overlooked and excluded from this type of course guide.

A more reasonable approach might be to write several objectives for each unit or chapter in the course. This would result in 20 to 40 broad behavioral objectives which would give the students and the staff a clear, concise description of the criteria used to determine the successful course completion. An alternative approach would permit faculty committees to select desired objectives from a bank of objectives[1] written by educators skilled in the art of objective writing.

---

[1] Instructional Objectives Exchange, A project of the Center for the Study of Evaluation UCLA Graduate School of Education, Los Angeles, California

The Pennsylvania Department of Education publication, Behavioral Objectives, An Annotated Resource File, can be very helpful in identifying relevant materials. Particular listings in this PDE publication that provide a good introduction to behavioral objectives include, The Conditions of Learning (Gagne, Robert M., Holt, Rinehart and Winston, Inc.), Taxonomy of Educational Objectives (Bloom, Benjamin S., David McKay Co., Inc.) and Behavioral Objectives: A Programmed Approach (The Pennsylvania Department of Education).

Other methods of attending to Proposition One and Two would include student contracting, continuous progress and programmed instruction. Each of these strategies involves the identification of special goals or objectives and provides the student with an unambiguous description of the expected performance required for the course or unit. See Appendix A for information related to these strategies.

Proposition Three: The more the student perceives learning as being relevant, the greater will be the student's achievement and gratification.

Research indicates that students who are not interested in school and learning tend to feel school is not relevant. An item in the 11th grade Goal IV EQA instrument, "I think that what is taught in this school is mostly useless in today's world," is an example of the type of items that relate to Proposition Three. In school districts having low Goal IV mean scores, students are probably saying that the things they are being taught are not relevant.

There are several ways to look at intervention techniques related to this proposition. One possibility is to alter the curriculum in such a way that it will be considered relevant by the students. For example,

in place of a senior high school general mathematics problem involving 6.5 pounds of candy at 39 cents a pound and 13.25 pounds of candy worth 57 cents a pound, (to teach multiplication of decimals), consider the displacement of a 1973 Corvette engine and its relationship to the bore and stroke of the engine. In social studies, a field survey of local political problems could replace or supplement a textbook unit on American Government.

Curricular revision of this type can be easily accomplished by teachers. The procedure would involve writing realistic course objectives and designing instructional strategies, including games and simulations to teach these objectives. The model, "Mathematics for Life Roles[1]," developed by this writer involves such a procedure to design a relevant mathematics curricula. This curriculum development model has also been successfully used across subject areas to provide what might be termed education for life roles. Other strategies and materials designed for specific subject relevancy may be available from the Pennsylvania Department of Education, Bureau of Curriculum Services.

---

[1]"Mathematics for Life Roles," a brief description, Guerriero, Carl A., Pennsylvania Department of Education.

An alternative approach to making education relevant by designing the curriculum to meet the students' perceptions of relevancy would be to change the students' perceptions of relevant education. This might be accomplished by strategies such as contract counseling[1], vocational and career counseling[2] or group counseling[3].

In the first case, students write contracts for certain course objectives similar to the usual student contracting procedure. The uniqueness of contract counseling lies in the periodic meetings between the student and counselor. These meetings are designed to assist the student in the successful completion of the contract.

Vocational or career counseling, on the other hand, involves an awareness on the part of the student to the wide variety of career choices and their prerequisite skills.

Group counseling may relate to values or careers and may have the effect of making certain educational objectives more relevant to the students.

In any event, the strategy is to provide counseling designed to instruct students as to the skills and concepts necessary for achieving success, by any definition, in the real world. If these are, in fact, the skills and concepts being taught, then they should appear relevant to the student.

---

[1]"Contract Counseling" from Research Relating to Children-Bulletin 29 September 1971 - February 1972.

[2]"Vocational Guidance and Career Development in the Schools: Toward a Systems Approach," Herr, Edwin L. and Cramer, Stanley H. Houghton Mifflin, "Career Development Education Syllabus K-12," The Pennsylvania Department of Education.

[3]"The Motivational Effect of Values as Content in Group Counseling with Underachieving Adolescents," Blackman, Evelyn L. Erie ED 049-493.

Proposition Four: The more the student is exposed to a variety of teaching strategies and learning experiences, the greater will be the student's achievement and gratification.

There is a general agreement by educators and learning theorists that variation is a necessary ingredient for interest and learning. The Hawthorne Effect, a phenomenon which tends to make new programs successful--at least on a short-term basis--lends credence to this proposition. If, in fact, a new program causes students to achieve at a higher level when used initially but after extensive use causes student achievement to regress to a level equivalent to the traditional program, then the increase may be attributed to the Hawthorne Effect. A conclusion one might draw is that maximum achievement can be obtained by creating a continuous Hawthorne Effect.

Students are reinforcing this proposition by their responses to certain items on the Goal IV EQA instrument. For example, on the item, "There is not enough variety in the way classes are taught," and similar items in other research studies, students are responding in the affirmative. They are saying there is very little variety in the classroom and, in many cases, classes are boring.

The solution to this problem is one of teacher training or retraining. Research indicates that many teachers are not

satisfied with the way they are teaching; but when asked why they continue to teach that way, they indicate they do not know any other way.

Ideally, each teacher should be comfortable using a variety of strategies. The following discussion will identify a few.

Student Contracting

This strategy was noted as an intervention technique related to Proposition One. Not only does student contracting permit the student to clearly understand the objectives of the task, but it also allows the student to have an input into the identification of the learning objectives.

Very simply, student contracting is a procedure whereby the student and the teacher determine the specific objectives of an educational experience, the criterion for achievement of the objectives, and the contingencies related to success and failure.

For example, the objective might be: "The student will be able to design a simple data collection activity, collect

the data and draw conclusions." The criterion for achievement could be a:

(a) written description of the activity.
(b) table containing the data collected.
(c) list of conclusions along with a discussion for each conclusion.

Finally, the contingency for the successful completion of the task could be one or more of the following:

(a) An "A" grade
(b) Optional class attendance for X days or weeks
(c) Privilege to use contracting again

This strategy can be beneficial from middle school grades through high school, and is appropriate for a wide variety of ability levels.

A more detailed description of student contracting can be found in Lloyd Homme's How to Use Contingency Contracting in the Classroom, published by Research Press, Champaign, Illinois. Other references are noted in Appendix A.

Team Learning

There are a number of variations of the team learning teaching strategy; but, in general, it consists of a team of two to six students working together on

a learning activity. The basic difference between variations is the composition of the team which can be heterogeneous or homogeneous with respect to ability. Heterogeneous team composition has a number of advantages.

(a) it is conducive to peer tutoring
(b) it enhances cooperation between team members and competition between teams
(c) it permits high ability students to recognize and better understand and appreciate the problems of students of lesser ability
(d) it allows students to play a leadership role
(e) it provides each team with one or more resource persons

This strategy can be valuable for students with a variety of abilities from grade 6 to grade 12. With proper contingency management such as team grades based upon daily quizzes and a method of final student evaluation which combines team effort with individual effort, team learning can be a very useful strategy to increase student interest. Studies show that about 90 per cent of the students who have been involved with team learning prefer it to traditional teaching methods. However, this too can be overdone. Four to eight weeks would be a reasonable time frame for using this strategy. A Team Learning Manual[1], available from the Pennsylvania Department of Education and a

---

[1]Part of an unpublished doctoral dissertation by this writer.

book Students as Partners in Team Learning, Poirier, Gerard A., Berkeley, California are resource materials relating to the strategy and should provide the necessary information for teacher implementation.

Peer Tutoring

Peer tutoring or tutoring by upper classmen can be very advantageous for both the tutor and the student. From the student's point of view, the situation provides a comfortable, nonthreatening environment in which questions can be explored which otherwise may have been suppressed in a traditional lecture-recitation environment.

From the tutor's point of view this situation provides an opportunity to organize information in a manner that can be easily understood by the student being tutored. This not only reinforces the tutor's previously learned concepts but permits in depth understanding not possible by traditional learning strategies. Team learning is a type of peer tutoring. Other references related to peer tutoring may be found in Appendix A.

Learning Stations

Learning stations or activity centers provide students with an opportunity to learn how to learn.

Properly designed, the station permits students to make decisions, collect data, organize information and draw conclusions. They are appropriate at nearly all grade levels and can be used for the introduction of new concepts, follow-up of previously learned concepts or remedial work.

Teachers can design excellent activities for learning stations which can be supplemented by commercial materials. The general pattern would be to first identify the concept or skill to be taught, next to construct a student behavioral objective related to this concept and finally to design the learning package for the objective. Occasionally the reverse procedure may be followed. That is, an activity may come to mind that would interest students and be related to the subject. An analysis of the activity would provide the skills or concepts involved and perhaps guide the final design of the activity.

Encouragement by the administration is a necessary ingredient to the successful initiation of learning stations. Both teachers and students will need time to adjust. Student activity necessarily involves a certain amount of noise, movement and freedom not associated with traditional classrooms. Proper contingency management, however, can increase the probability of success for this teaching strategy.

A working paper containing a brief description of learning stations and sample activities are available from this writer. Other materials are listed in Appendix A.

Simulations and Games

Simulations and games are valuable teaching tools which, when properly used, can represent the process of real life and at the same time provide an enjoyable learning experience for students. There is no clear cut distinction between simulations and games. Perhaps simulations might be defined as educational experiences that simulate life, have no "correct" outcomes and assign roles to the players. Games, on the other hand could be defined as experiences where competition is paramount, probability plays a role and materials such as dice, cards and boards are involved.

The formal classroom can be a sterile environment in which irrelevant facts and concepts are presented. An alternative classroom might use a simulation such as "Ghetto"[1] where students assume roles traditionally found in the ghetto. Here students learn of the frustrations of the poor. They learn that an investment in education as well as some good luck can pay off. In addition, they discover that certain neighborhood

---

[1]GHETTO, Western Publishing Company, New York, New York

conditions and events affect every member of the community. Each player is provided with a personal profile to be used as a basis for the utilization of time in activities such as work, attending school, hustling or going on welfare.

Such a simulation would be appropriate as an activity which could involve, in one way or another, the entire class. On the other hand, board games (to teach the stock market) and card games (that build arithmetic skills) might be better suited for learning centers.

There is a wide variety of games and stimulations available, some of which are described in the Pennsylvania Department of Education publications, Simulation Games for Social Studies, Games for the Language Arts and Games Assist Mathematical Education Success.

In addition, Project SESAME, an ESEA Title III project at Bucknell University produced some excellent materials related to educational games. Appendix A contains additional references.

Open Education

The term "open education" means many things to many people. In general, it is an attempt to humanize education, actively involve students and make their education relevant.

This can be accomplished on a schoolwide basis or a classroom by classroom basis. In either case, teacher in-service is a necessary prerequisite to the introduction of this strategy. If an individual classroom teacher decides to try an open classroom, several observations are in order:

(a) Begin small.
(b) Students need direction and cannot initially operate successfully with too much freedom.
(c) Students may, at first, feel they are not learning anything because "to learn you must listen to lectures."
(d) Activity, and therefore some noise and movement is an integral part of the open classroom.
(e) Alternative methods of evaluation may be necessary -- group projects and grades, observational techniques and perhaps even attendance patterns.

Appendix A contains references related to this strategy.

Team Teaching

There is a wide variety of team teaching strategies with only one common parameter--a team of teachers. One plan may have the team membership consist of two professional teachers of the same discipline while another may have a five- or six-member team consisting of several professional teachers of varying disciplines and several teacher aides. In the former case, one teacher might lecture while the other teacher conducts a recitation class relating to the same subject. In the latter situation, cross-discipline

activities might be employed where the teachers design the materials and the instructional sequences and the teachers and teacher aides act as resource people.

The status of the teachers within the team is another variable. One plan might have a hierarchical team whereby a team leader assumes responsibility for all facets of the team's operation while another plan might assign equal status to each team member.

A major difference between the team teaching strategy and the other teaching strategies presented in this section is that it involves the cooperation of several teachers. Whereas the other strategies can be initiated by a single teacher, team teaching requires joint planning and evaluation by the teaching team. In addition, schedules must be arranged to permit both small and large group instruction as needed as well as common meeting period for the faculty team.

A considerable amount of lead time is paramount prior to the initiation of this strategy. Teachers should visit schools that are using the strategy. Workshops relating to the theory and application of team teaching including the design and evaluation of curricular materials are necessary. Finally, class schedule will have to be developed to accommodate teacher meetings, large and small classes and

simultaneous class scheduling of each subject, (e.g., several algebra II classes meeting third period each day). Appendix A contains a list of references related to team teaching.

Other Strategies

The teaching strategies described in this document are but a few of the many ways teachers and administrators can vary the instructional process. Instructional television, computer assisted instruction (CAI), language laboratories, mathematics laboratories, community resource people and outdoor education are some additional strategies related to Proposition Four, whereby interest in school and learning may be increased.

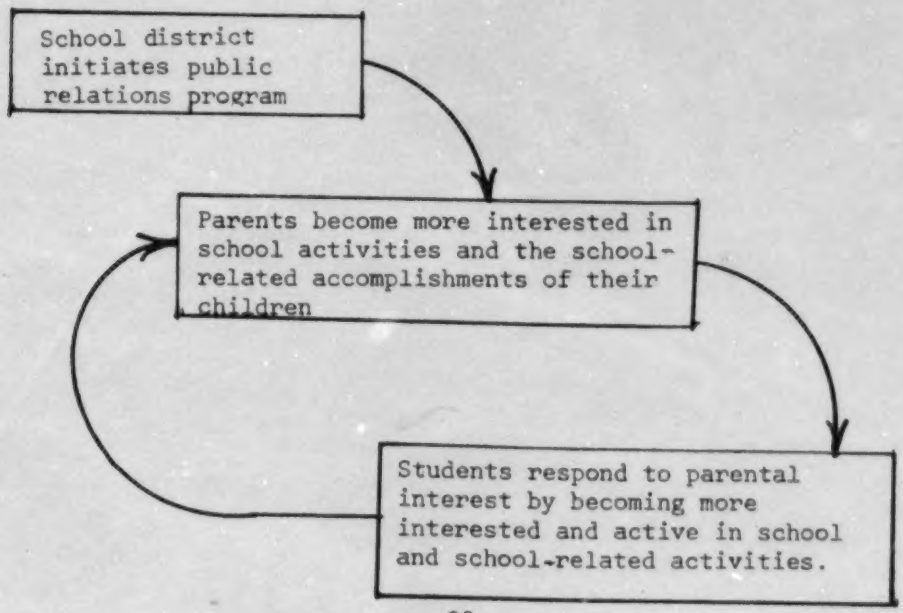
It should be remembered that any strategy, regardless of how innovative, and any teacher, regardless of how talented, can become boring and uninteresting. The key is variation of instructional strategies and the enthusiasm of the teacher.

Proposition Five: The more the student's parents and relatives display an overt interest in the student's accomplishments, the greater will be the resulting achievement and gratification.

The relationship between the variables home climate and parental attitude towards school and student's educational outcome is well documented by national and international research. EQA data reinforce

these studies. For example, there are significant correlation coefficients between PARATT (parental attitude toward school) and Goals I, II, III-V, III-M, IV, V, VIII, IX and X for 7th graders. The range is from .33 to .73. Similar findings are evident for grades 5, 9 and 11. One cannot draw the conclusion that high scores on the variable PARATT cause high scores on these goals; however, one cannot deny that possibility exists. The best that can be said with certainty is that in schools where parents are supportive of the faculty, the administration and the curriculum and the parents frequently discuss school matters with their offspring, the schools tend to have higher scores on most of the EQA goals.

It would seem reasonable then for school districts to attempt to create a favorable parental attitude towards the school system. The chain of events in the following chart could conceivably result from such a strategy.


School district initiates public relations program
Parents become more interested in school activities and the school-related accomplishments of their children
Students respond to parental interest by becoming more interested and active in school and school-related activities.

Community talent banks, parent advisory councils, news releases, parent aides, newsletters, band parents associations, fairs and back-to-school nights (where parents follow their children's schedule for 15-minute "classes") are just a few of the possibilities for public relations. The EQA document for Goal IX contains a more complete description of this variable and suggested intervention techniques.

Proposition Six: The student's achievement and gratification in the learning process is directly related to the sincere interest and compassion exhibited by the teacher.

The acceptance of the Ten Goals of Quality Education necessarily implies the infiltration of teacher-dominated, subject-oriented classrooms with more humanistic types of instructional strategies. This process has been under way for several years. The influence teachers have on children is directly related to the warmth and sincere interest the teachers exhibit toward children, particularly in schools classed as low socioeconomic status (SES) schools. Many teachers, more secondary than elementary, are concerned only with the cognitive achievement of their students. This is to be expected since much of their formal education was also concerned with cognitive achievement.

Concentrated in-service programs designed to acquaint teachers with the affective domain, the Ten Goals of Quality Education, levels of behavior and writing educational objectives can be useful. These programs could be followed by having teachers, by department, write both cognitive and affective objectives for their courses and then identify or design activities and strategies to meet these objectives. Research indicates in-service of this type can affect a positive change in teacher methods as related to a more humanistic-type classroom.

Certain grading systems can also communicate to students the interest and concern of their teachers, in particular, a method of reporting student achievement whereby a statement or two is written by the teacher in lieu of, or in addition to, a letter grade. This is quite time consuming from the viewpoint of the teacher but the pay off may be worth the effort. Perhaps these evaluation comments could be written by the teacher only twice a year rather than each grading period. Dr. Sidney Simon, a professor at the University of Massachusetts Center for Humanistic Education, and Dr. Howard Kirshenbaum, director of the Adirondack Mountain Humanistic Education Center, have gone so far as to suggest replacing grades with learning contracts, self-evaluation and self-grading in addition to written evaluations by teachers. Appendix A contains references related to Proposition Six.

Proposition Seven: The greater the student's involvement in the learning process, the greater will be the student's achievement and gratification.

There is much research to indicate that if a student is actively involved in the learning process, by manipulation of objects, participating in a discussion (not just listening while the five or six better students in a class of 30 respond to the teacher's inquiries), collection data, building, sewing, role playing or involvement in some other way, the student will have a greatly lengthened attention span, be more interested in the learning process and retain the material learned for a longer period of time.

The discussion relating to Propositions One, Two, Three and Four, contain a variety of strategies that can be implemented to increase student involvement. Any one of these strategies would no doubt be more

interesting from the student's viewpoint, than, for example, a situation in which a history teacher tapes his/her lecture and then plays the tape to each of his/her five classes.

Small schools and small classes are both variables that affect interest in school and learning. Small classes permit greater student involvement in class discussion and lend themselves to small group and team learning, learning stations and other innovative strategies. Some research indicates small classes do not make a difference in student achievement and, on the surface, EQA data appears to support this view, not only for achievement, but for interest in school as well. However, if a linear relationship between class size and Goal IV is not assumed, (zero order correlation coefficients assume a linear relationship), then EQA data suggests that smaller classes relate positively to interest in school as well as many of the other affective goals. An additional limitation on the EQA data is the small range of class sizes. For example, the 9th grade mean class size was 27.9 students and over 95 per cent of the schools sampled had a mean class size of 24.4 or greater. If student-teacher verbal interactions or encounters are important, and some educators contend this is a major measure of successful teaching, then even 24.4 students per class may be too large. Fifty per cent of the 9th grades tested had a mean class size of 28 or more.

The EQA data did not include really small mean class sizes. In addition, it is doubtful that many teaching strategies are altered as a result of a reduction of class size by one or two students. To find a significant difference, classes of 10 to 15 students exposed to teaching

strategies designed for small classes may be needed. There is no question, however, that the smaller the class, the greater the probability of verbal interaction between the teacher and each student. It follows, then, that this increase in the number of verbal encounters per student may have a positive effect on Goal IV scores.

Several scales to measure student-teacher interaction have been developed. The process is called interaction analysis. Two of the scales, the Withall and the Flanders, are well documented by research and are used by some teacher training institutions for the evaluation of student teachers. Classroom climate and verbal interaction can be measured using these scales. An outside observer, such as the department head or curriculum director may use the scale or as an alternative, the teachers can tape their own classes and, at their leisure, replay the tape and score the interactions using the scale. This may make the teacher more aware of the positive and negative aspects of verbal communication and can be the stimulus for increasing favorable student-teacher interactions. One study has shown that the decrease in student interest toward school, as the school year progresses, is more evident if the teachers exhibit a low incidence of praise. Praise is an intregal part of the verbal interaction scales. Appendix A contains several references relating to teacher-student interaction.

VARIABLES THAT RELATE TO GOAL IV

The EQA assessment model includes a method of "matching" schools on certain parameters that relate to school mean scores on the Ten Goals of Quality Education. This process involves the use of multiple regression analysis and prediction equations. There are in the neighborhood of 40 parameters or condition variables used in the program. Some of the variables are, in effect, constants for an individual district and will remain stable over the short term. (For example, father's occupation (FOCC), which quantifies the occupations of the students' fathers.) On the other hand, variables such as teacher to pupil ratio (STAFFP) and teacher classroom practices (CLPRACT) are not necessarily constant and may be changed by overt actions taken by the school faculty, administration and the school board. The condition variables have a dual purpose--to "match" schools using regression (prediction) equations and to provide the school districts with information which may be used for curricular revision.

Correlation coefficients between each of the condition variables and each of the Ten Goals of Quality Education have been calculated and may provide clues to the development of intervention techniques. (For a more complete discussion of correlation coefficients refer to step 3, in Manual Three, Construction of a Plan of Action.) Several of the variables having significant correlations with Goal IV will be discussed here; however, the discussion will be based upon 1973 grade 9 data. The school district's curriculum committee should obtain the correlation matrix for the year they were tested, the appropriate grade level and the socio-economic status (SES) level in which they are classified by EQA.

There are two types of correlation coefficients available for grade 9. One type relates school mean scores on the condition variables with school mean scores on the goals while the other type relates individual student scores on the condition variables with individual student scores on the 10 goals.

Significant correlation coefficients between condition variables and Goal IV scores using school means are listed below. Where applicable the coefficients for individual students are also listed, whether significant or not.

TABLE 2

CORRELATION COEFFICIENTS BETWEEN CONDITION VARIABLES AND GOAL IV FOR GRADE 9

Condition Variables	Acronym	r(Schools)	r(Individuals)
Values	VALUES	.64	.22
Mores-Girls	MORESG	.54	.16
Home Climate	HOMECLIM	.49	.32
Mores-Boys	MORESB	.47	.13
Parental Attitude Toward School	PARATT	.46	.43
Teacher Satisfaction w/Principal	TSATISF	.20	(NA)
Teacher Career	TCAREER	.19	(NA)
Grade Enrollment	GRENROLL	-.21	(NA)
Per Cent White	PCTWHITE	-.35	-.004

A distinction must be made between the coefficients derived from school mean scores and coefficients derived from individual student scores.

For example, r (VALUES, IV) = .64 for schools, which indicates that in schools where students consider being well informed more important to them personally than coming from the right family, a measure of VALUES, the school mean score on Goal IV will tend to be high. However, r (VALUES, IV) = .22 for individual students which indicates that students who feel that being well informed is more important to them personally have less tendency to score high on Goal IV than the group data might suggest. This phenomenon is explored by Robinson[1] who concludes that generally correlation coefficients based upon individual data will be smaller than coefficients based upon group data and, at best, the individual coefficients will equal the group mean correlation coefficients.

On the other hand consider the relationship between parental attitude toward school (PARATT) and Goal IV. Schools in which students indicate that their parents support the school and consider that it is doing a good job tend to have high mean scores on Goal IV, r (PARATT, IV) = .46. Similarly, students whose parents support the school and consider that it is doing a good job also tend to have high individual scores on Goal IV, r (PARATT, IV) = .43.

Two condition variables that have moderately high correlation coefficients for schools and low coefficients for individuals are MORES-GIRLS and MORES-BOYS. Each measures what students believe is necessary to be a success in the eyes of their peers in their school. The correlation coefficients seem to imply that what an individual perceives as being necessary for peer approval in their school has little predictive value

---

[1]Robinson, W. S. Ecological Correlations and the Behavior of Individuals, American Sociological Review. Vol. XV, June 1950.

with respect to that individual's score on Goal IV. However, this perception averaged over many students in a school does have predictive value with respect to the school's mean score on Goal IV. Schools where students as a group believe doing well in school and being bright and well-informed is more important than athletics and coming from the right family tend to have higher mean Goal IV scores.

The hypothesis one could construct from these data might suggest that if a school could increase the students' perception of the importance and corresponding recognition for learning and knowledge and decrease the emphasis and recognition for nonacademic achievements, the net result may be manifested in higher Goal IV scores. An even greater relationship exists between VALUES and Goal IV. Response choices on this variable are the same as the response choices for MORES and are related to what a student believes is important personally, regardless of what others may think. Here schools with high mean scores on VALUES tend to have high mean scores on Goal IV and to a lesser extent the same tendency occurs with individuals. It would appear that the hypothesis developed from MORES is reinforced by the information drawn from VALUES.

For the variables home climate (HOMECLIM) and parental attitude toward school (PARATT) the correlation coefficients for school data and student data are much less discrepant. This indicates that not only do schools with high scores on these two variables tend to have high scores on Goal IV but so do individuals. HOMECLIM measures how confortable a student feels at home and PARATT measures the extent to which the parents support the school and believe the school is doing a good job. HOMECLIM may affect PARATT or conversely PARATT may affect

HOMECLIM. In reality, they probably interact. HOMECLIM may not be an area with which schools should get involved, but they can justifiably direct attention at PARATT by strategies such as newsletters, band fairs or other types of public relations. These strategies may increase PARATT scores, possibly HOMECLIM scores and perhaps eventually Goal IV scores.

When the school data is delineated into low, medium and high SES schools, several additional factors are observed.

1. For low SES schools, PARATT, VALUES, and HOMECLIM have even higher correlations than the overall grade 9 data (.68, .65 and .57 respectively), suggesting a stronger relationship and perhaps a greater probability for increasing Goal IV scores by manipulating these variables.
2. For middle SES schools, HOMECLIM and PARATT have the greatest condition variable correlation coefficients. However, the variables are not as strongly related in middle SES schools as for the total population or the high and low SES schools.
3. For high SES schools, VALUES, MORESG and MORESB are the condition variables having the greatest relationship to Goal IV (.82, .80, .77). In addition, HOMECLIM, PARATT, and CLPRACT (teacher classroom practices) also correlate highly (.51, 51, .41). Of these variables the only new addition is CLPRACT which indicates that in high SES schools where teachers are using a variety of innovative teaching strategies, students tend to be more interested in school. CLPRACT does not measure the extent to which teachers use innovative techniques. It is possible, therefore, that a

similar relationship exists for low and middle SES schools but the instrument is not sensitive enough to measure it.

One other condition variable is worth noting. For grade 9, grade enrollment (GRENROLL) correlates negatively with Goal IV scores. The larger the grade enrollment the greater the tendency for the student to be disinterested in school. Other research generally supports this finding that the larger and/or more crowded the school the lower the interest (and also mental health) of the students. This parameter is difficult to change unless the district is in the process of building a new school or it has a population shift from one area to another. Two small high schools would seem preferable to one large high school if Goal IV is the criterion. As a matter of fact, there are significant correlations between GRENROLL and five of the 10 goals (IV, V, VI, IX, X), and in each case they are negative, i.e., the greater the 9th grade enrollment the lower the 9th grade scores on these goals.

Other significantly related variables for high SES schools are housing (HOUSING), father's occupation (FOCC), grade enrollment (GRENROLL) and per cent white (PCTWHITE), having negative coefficients of -.41, -.41, -.45 and -.70 respectively.

ITEM DATA

EQA item data can provide valuable information related to interest in school. The 1974-1976 grade 11 test battery includes three subscales for Goal IV--interest as related to learning, to school and to teachers. Previously only interest in learning and interest in school were

delineated; for grades 5 and 8, this is still true. In any case, data are available for each item from the EQA office in Harrisburg. The data indicates the per cent of the students from a given district who responded to each of the four possible answers for a given item. The statewide response pattern is available for comparison purposes.

For example, statewide, 39 per cent of the 9th grade students in the 1973 EQA sample agreed or strongly agreed that "Most of my classes this year are boring." The comparison of student responses from a given district with this statewide figure may help to identify the specific reason, in this case boring classes, for low Goal IV scores. If, for example, 51 per cent of a district's 9th grade students indicate their classes are boring, then perhaps intervention techniques involving innovative teaching strategies are appropriate.

Several other interesting and potentially useful bits of data are obvious from the 1973 data. Only 49 per cent of the students in the sample feel the teachers are interested in them. A somewhat greater number, 68 per cent, feel teachers "know what they are talking about." Only half, 51 per cent, believe homework is <u>not</u> a waste of time. These figures should be compared to individual school data for a clearer picture of what the district's students are saying about their formal education.

There is little comfort even if a school's data on these particular items are about "average." This would indicate that a good portion of the student body is not convinced that the teachers are really interested in them, know what they are talking about or assign worthwhile homework. Furthermore, many students are saying implicitly "my classes are boring!"

Teacher in-service can help improve some of these conditions as has been pointed out in other parts of this document. Homework was not discussed but research tends to indicate that the amount of homework assigned, whether completed or not, has little effect upon achievement[1]. Action research conducted by skeptical teachers may be one strategy that could improve the type and amount of homework assigned. Another possibility is for teachers to initiate some sort of student feedback process which would in effect have students rating teacher performance for the sole purpose of improving instruction. This could be done by the teacher without any external controls or administrative involvement.

It is suggested then that school item data be reviewed and where school percentages are below statewide data, reasons and intervention techniques be researched to eliminate these discrepancies.

OPERATING PROGRAMS

Pennsylvania ESEA Title III projects are catalogued each year in a RISE publication called PACE[2], which is distributed to district superintendents. The publication contains the names and addresses of the school districts using innovative Title III projects, the project director, the target population for the project, the major objectives of the project, the activities involved in the project and other related information.

PACE descriptions related to Goal IV, used to index the Title III projects are listed on the following page.

---

[1]Study on Homework, Hojak, J. L., the Pennsylvania Department of Education.

[2]Projects to Advance Creativity in Education (PACE), Research and Information Services for Education, 198 Allendale Road, King of Prussia, Pennsylvania 19406.

ACTION PROGRAMS (COMMUNITY)
ACTIVITY LEARNING
AFFECTIVE BEHAVIOR
ALTERNATIVE SCHOOL
ATTITUDES
BEHAVIORAL OBJECTIVES
BEHAVIOR CHANGE
COMMUNITY INVOLVEMENT
CONTINUOUS PROGRESS PLAN
COOPERATIVE PLANNING
CURRICULUM DEVELOPMENT
DEVELOPMENTAL GUIDANCE
DIAGNOSTIC TEACHING
EDUCATIONAL DEVELOPMENT
EDUCATIONAL STRATEGIES
EFFECTIVE TEACHING
FLEXIBLE SCHEDULES
GROUPING (INSTRUCTIONAL PURPOSES)
HETEROGENEOUS GROUPING
HUMANISM
INDEPENDENT STUDY
INDIVIDUALIZED CURRICULUM
INDIVIDUALIZED INSTRUCTION
INDIVIDUALIZED PROGRAMS
IN-SERVICE PROGRAMS
IN-SERVICE TEACHER EDUCATION
INSTRUCTIONAL INNOVATION
INTERDISCIPLINARY APPROACH
LEARNING MOTIVATION
MINI-COURSES
NONGRADED CLASSES
OPEN EDUCATION
OPEN PLAN SCHOOLS
OUTDOOR EDUCATION
PARENT PARTICIPATION
PROGRAM DEVELOPMENT
QUESTIONING TECHNIQUES
RELEVANCE (EDUCATION)
RESOURCE CENTERS
RESOURCE TEACHERS
SCHOOL COMMUNITY RELATIONSHIP
SIMULATED ENVIRONMENT
STUDENT CENTERED CURRICULUM
STUDENT PARTICIPATION
TEACHER ATTITUDES
TEAM TEACHING

The Division of Educational Quality Assessment would like to initiate a file on intervention techniques that Pennsylvania schools have instituted as a result of EQA assessment. In addition, school districts using

strategies described in this document could be listed. The growth of the files would be a function of school district cooperation in volunteering information. This clearinghouse activity will be tried on a pilot basis and, if feasible, may become an integral part of the EQA system.

SUMMARY

Goal IV, interest in school and learning, is a many faceted goal. Teaching styles, school regulations, curricular materials, extracurricular activities, in fact, every aspect of the educational program from the bus driver to the superintendent has some affect upon a student's attitude toward school and the learning process.

This document has presented seven Propositions that are based upon the literature and EQA data. Each Proposition should be viewed relative to the district's present educational program and their scores on the EQA condition variables. Proposition Five involving parental attitude would probably not be appropriate for a district whose PARATT score is in the 95th percentile. On the other hand, Proposition Six involving teacher interest may be most appropriate if the district's TSATST (teacher satisfaction with their students) score is at the 5th percentile.

Following an analysis of the propositions, the condition variables, and item responses, the district should be in a position to identify those Propositions that are most applicable in their situation.

Finally, as a result of the suggestions contained in this document, on-site observations of operating programs, consultation with specialists in the Department's Bureau of Curriculum Services and Bureau of Planning and Evaluation or at teacher training institutions, materials from RISE and a review of current in-service credit programs approval by the Bureau of Curriculum Services, the district should be prepared to initiate intervention techniques designed to increase EQA Goal IV scores.

APPENDIX

INFORMATION PACKETS

The following information packets relating to Goal IX are available from the Research and Information Services for Education (RISE), 198 Allendale Road, King of Prussia, Pennsylvania, 19406. School districts desiring these packets should request; "EQA Information Packet on..." and the title of the packet along with the type of printout desired. Schools are cautioned that if microfiche (mf) is requested, the school must have access to a microfiche reader.

The packets are designed to provide an introduction and foundation for further study.

Teacher - Student Interaction.....44

How to Increase a Teacher's Interest and Compassion Towards the Students...45

Student Involvement.....46

Continuous Progress Plan.....47

Team Teaching.....48

Open Education.....49

Learning Stations.....50

Student Contracting.....51

Individualized Instruction.....52

Simulations and Games.....53

Programmed Instruction.....54

Peer Tutoring.....55

Relevant Education.....56

Symbol indicates type printout included
AB - abstract of article
CA - complete article
EX - excerpt from article
mf - microfiche

AB AMIDON, EDMUND and BARAK ROSENSHINE
mf 1968 Interaction analysis and micro-teaching in an urban teacher education program. A Model for Skill Development in Teaching. Chicago, Ill., Convention of the American Educational Research Assoc. 26 p. (ED 076 496)

CA FLANDERS, NED
1973 Basic teaching skills derived from a model of speaking and listening. Journal of Teacher Education 24: 24-37. (Spring) (EJ 074 174)

EX SIMON, ANITA and E. GIL BOYER
1970 Mirrors for behavior II, Volumes A and B: an anthology of observation instruments. Philadelphia, Pa., Research for Better Schools, Inc. (R.I.S.E. document No. 01567) 612 p.

CA WITHALL, JOHN
1972 Research in systematic observation in the classroom and its relevance to teachers. The Journal of Teacher Education 23: 330-332. (Fall) (EJ 067 395)

CA YOUNG, DAVID and DOROTHY YOUNG
1968 The model in use (microteaching). Theory into Practice 7: 186-189. (December)

Symbol indicates type printout included
CA - complete article
EX - excerpt from article

EX COTTON, MARLENE and others
1973 Learning about feelings. New London, Conn.; Croft Leadership Action Folio 50. Booklet B (12 p.) and Booklet C (8 p.)

CA JOYCE, BRUCE and others
1969 Sensitivity training for teachers: an experiment. The Journal of Teacher Education xx(1): 75-83. (Spring)

CA KIMPLE, JAMES A.
1969 How South Brunswick schools developed an inservice training program. Nation's Schools 83: 85-87. (March)

CA LEVIN, MARC N.
1972 Teacher preparation for affective education. Philadelphia; American Educational Research Association. (April) 8 p.

EX ROGERS, CARL R.
1969 A college professor gives freedom within limits. IN Freedom To Learn. Columbus, Ohio, Charles E. Merrill Publishing. 358 p. (41 p.)

Symbol indicates type printout included
AB - abstract of article
CA - complete article
EX - excerpt from article

EX ARMSTRONG, RONALD
1972 Student involvement. Analysis and bibliography series, no. 14. Eugene, Oregon; Oregon University. 15 p. (4-10). (ED 060 510)

EX EDUCATIONAL RESEARCH SERVICE
1970 Framework for student involvement. Washington, D.C.; Educational Research Service. 32 p. (t.c.)

CA HARRISON, CHARLES
1971 Making the most of student power. Croft leadership action folio #31. New London, Conn.; Croft Educational Services. approx. 48 p.

AB KENTUCKY STATE DEPARTMENT OF EDUCATION
mf 1972 Learning through student activities. Frankfort, Kentucky; Kentucky State Department of Education. 72 p. (ED 072 537)

CA MC GUIRE, EUNICE
1971 Student involvement in English curriculum planning. School Review 79: 419-25. (May) (EJ 037 356)

Symbol indicates type of printout included
AB - abstract of article
CA - complete article
mf - microfiche

AB CATHOLIC DIOCESE OF PITTSBURGH, PA.
mf 1970 Guidelines for a continuous progress program. Pittsburgh, Penna. Catholic Diocese of Pittsburgh, Pa. 110p.[ED 054 521]

CA MARTIN, MARGARET and CHARLOTTE BURROWS
1973 Louisiana's high flying Apollo school. American Education 9: 4-9 (March)[EJ 077 500]

AB SNAKE RIVER SCHOOL DISTRICT 52, BLACKFOOT IDAHO
1972 Curriculum change through nongraded individualization. Second operational year and final report. Blackfoot, Idaho, Snake River School District. 193p(1p)[ED 079 962]

AB TAYLOR, RUTH, Comp.
mf 1973 The nongraded school. An annotated bibliography. Current bibliography series no. 5. Toronto, Ontario Institute for Studies in Education. 47p[ED 079 862]

AB WISCONSIN CONSORTIUM FOR INDIVIDUALIZED LEARNING
mf 1971 Guidebook for teacher use in individualizing instruction through use of UNIPACs. Madison, Wisconsin Consortium for Individualized Learning.

Team Teaching

Symbol indicates type printout included
AB - abstract of article
CA - complete article

CA ARONE, FRANK T.
1971 Toward greater success in team teaching. Clearing House 45: 501-2. (April) (EJ 037 274)

CA BOREN, WILLIAM R.
1969 Team teaching: how to incorporate it into our schools. Ogden, Utah; Weber County Schools, Center for Team Teaching. 1 p. (ED 033 079)

CA GALLESSICH, JUNE et al.
1971 Team teaching: a study of team development and interpersonal functioning. The National Elementary Principal 51: 41-47. (October) (EJ 045 722)

CA PHILLIPS, EDWARD L.
1969 Team teaching: where do we begin? The Clearing House 43: 404-5. (March)

AB YORK, JEAN L.
1971 The background, philosophy, and purposes of team teaching. Module 1. Austin; Texas University, Research and Development Center for Teacher Education. 72 p. (ED 048 126)

Symbol indicates type printout included
AB - abstract of article
CA - complete article
EX - excerpt from article
mf - microfiche

CA HARRISON, MARY G., compiler
1972 A survey of Pennsylvania colleges and universities offering programs in the open education concept. King of Prussia, Pa.; R.I.S.E. 12 p.

CA RESEARCH AND INFORMATION SERVICES FOR EDUCATION
1973 R.I.S.E. bibliography on open education concept. King of Prussia, Pa.; R.I.S.E. 22 p.

EX NYQUIST, EWALD B. and G. R. HAWES, editors
1972 Open education: a sourcebook for parents and teachers. New York; Bantam Books. 399 p. (Table of Contents)

AB WALBERG, H. J. and SUSAN C. THOMAS
mf 1971 Characteristics of open education: a look at the literature for teachers. Newton, Mass.; Education Development Center. 114 p. (ED 058 164)

CA WARNER, JEANETTE, compiler
1972 Director of open space facilities in Pennsylvania. Harrisburg; Pennsylvania Department of Education. 14 p.

Symbol indicates type printout included
AB - abstract of article
CA - complete article
mf - microfiche

AB CONVERSE, JERRY
mf 1970 Classroom organization in meeting individual needs. Paper presented at the International Reading Association Conference. Anaheim, Calif. May 6-9. 17 p. (ED 041 719)

CA DINKEL, MARY R.
1969 RX for classroom spring fever--move the chairs. Grade Teacher 86: 70-71. (April) (EJ 002 362)

CA DRUMMOND, T. DARRELL
1970 The learning center. National Elementary Principal 50: 31-39. (September)

AB SIMMONS, MARILYN
mf 1970 Learning centers in a self-contained classroom. Annapolis, Md., Anne Arundel County Board of Education. 15 p. (ED 046 647)

AB VOIGHT, RALPH CLAUDE
1971 Invitation to learning: the learning center handbook. Washington, D.C., Acropolis Books, Ltd. 155 p. (ED 054 056) $4.95

Student Contracting

Symbol indicates type printout included
CA - complete article
EX - excerpt from article

CA ALDRIDGE, HAL
1971 Student contracts. Long Beach, California; Speech presented at the Long Beach Conference for the Foreign Language Framework, June 22, 1971. 4 p. (ED 055 503)

EX BROWN, B. FRANK
1968 Education by appointment: new approaches to independent study. West Nyack, New York; Parker Publishing Company. 175 p. (R.I.S.E. Document #370.B812)

EX DUNN, RITA and KENNETH DUNN
1972 Practical approaches to individualizing instruction: contracts and other effective teaching strategies. West Nyack, New York; Parker Publishing Company, Inc. 254 p. (R.I.S.E. Document #02184)

CA HARVEY, ANN
1972 Student contracts: a break in the grading game. Educational Canada 12: 41-44. (September) (EJ 068 037)

CA THOMPSON, CHARLES L. and WILLIAM A. POPPEN
1970 Committment to learning: a contract approach. School Health Review 1: 24-26. (November)

Symbol indicates type printout included
AB - abstract of article
CA - complete article
EX - excerpt from article
mf - microfiche

AB EDLING, JACK V., editor
mf 1970 Case studies: Individualized instruction. Stanford Univ., Calif.; ERIC Clearinghouse on Educational Media and Technology. 92 p. (ED 041 452)

EX EDUCATION U.S.A. SPECIAL REPORT
1971 Individualization in schools. The challenge and the options. Washington, D.C., National School Public Relations Association. 64 p. (1-19). (R.I.S.E. Document 01311)

CA FRUSCIONE, ALBERT A. and SUMNER F. RICHARDS
1970 An alternative to conventional classroom structure. Science Teacher 37: 27-30. (January) (EJ 014 768)

EX JOHNSON, STUART R. and RITA B. JOHNSON
1970 Developing individualized instructional material. A self-instructional material in itself. Palo Alto, Calif., Westinghouse Learning Press. 108 p. (preface, contents, introduction). (R.I.S.E. Document 00834)

CA TUNKS, ROGER
1971 Classroom strategies for success with packages. Journal of Secondary Education 46: 210-216. (May)

Symbol indicates type printout included
AB - abstract of article
CA - complete article
EX - excerpt from article
mf - microfiche

AB COLEMAN, JAMES S.
mf 1970 The role of modern technology in relation to simulation and games for learning. Washington, D.C.; Academy for Educational Development, Inc. 29 p. (ED 039 704)

EX GORDON, ALICE KAPLAN
1970 Games for growth. Palo Alto, Calif.; Science Research Associates, Inc. (165 University Ave.) 205 p. (2 p.) (R.I.S.E. Document #1449)

CA HARLAN, WILLIAM F.
1970 Teach it like it is--a stimulating game. English Journal 59: 1146-49. (November) (EJ 030 769)

CA HARRY, LINDY
1969 Using simulation games in the classroom. Baltimore; Johns Hopkins University. 15 p. (ED 031 767)

CA PROJECT SESAME G STAFF
1969 Annotated list of commercial educational games. Lewisburg, Pa.; Susquehanna ESEA (Title III) Synergetic Activities for Maximal-involvement via Educational Games. 25 p.

Symbol indicates type printout included
CA - complete article
EX - excerpt from article

EX EDUCATION U.S.A. SPECIAL REPORT
1971 Individualization in schools: the challenge and the options. Washington, D.C.; National School Public Relations Association. 64 p. (20-26, 54-59, 60-62)

CA POST, DUDLEY
1972 Up the programmer: How to stop PI from boring learners and strangling results. Educational Technology 12: 14-18. (August)

CA SILVERMAN, ROBERT
1967 How to use programmed instruction in the classroom. Cambridge, Mass., Hanoc Products Co., division of Bolt, Beranek, and Newman Inc. 39 p. (R.I.S.E. Document No. 002068)

CA SMITH, LUCILLE W. and P. G. KAPFER
1972 Classroom management of learning package programs. Educational Technology 12: 80-85. (September)

Symbol indicates type of printout included
AB - abstract of article
CA - complete article
mf - microfiche

AB BRADSHAW, CHARLES I.
mf 1971 Remedial reading instruction by student tutors in inner-city schools. San Diego; California Educational Research Association. 15p. [ED 052 280]

AB DETERLINE, WILLIAM A.
mf 1970 Training and management of student-tutors. Palo Alto, California; General Programmed Teaching. 57p.[ED 048 133]

AB GANTNER, ALAN, et. al.
1971 Children teach children: learning by teaching. New York; Harper & Row, Inc. 49 East 33rd St. 190p.[ED 056 157]

AB McCLELLAN, BILLIE FRANCES
mf 1971 Student involvement in the instructional process through tutoring. Tallahassee; Florida Education Association. 40p.[ED 055 046]

CA THELEN, HERBERT A.
1969 Tutoring by students. The School Review 77: 229-243(September-December)[EJ 011 615]

Symbol indicates type printout included
CA - complete article
EX - excerpt from article

EX COMBS, ARTHUR W.
1971 Can education be relevant? In Removing barrier to humaneness in the high school. Washington, D.C.; Association for Supervision and Curriculum Development. 101 p. (30-42) (ED 052 535)

CA OHME, HERMAN
1973 Relevance in innovation. Educational Leadership 30: 523-525. (March)

CA PINO, EDWARD C. and WALTER L. ARMISTEAD
1969 Toward a more relevant and human secondary curriculum. North Central Association Quarterly 43: 269-276. (Winter)

CA SAYLOR, GALEN
1973 What is relevant for today's students? Educational Leadership 31: 41-44. (October)

CA VAN TIL, WILLIAM
1969 The key word is relevance. Today's Education 58: 14, 16-17. (January) (EJ 000 402)